The Fish on Your Dish

For use with Fish Watch at www.fishwatch.gov

Grade Level
9-12

Materials
- Computers with Internet access
- Media supplies

Audio Visual Materials
- Computer and projector

Teaching Time
- Two or three 45-minute class periods

Seating Arrangement
- Groups of three or four

Maximum Number of Students
- None

Key Words
- Sustainability
- Bycatch
- Longlining
- Over-fished

Focus
- Sustainable seafood

Focus Questions
- How can consumers make smart choices about sustainable seafood?

Learning Objectives
- Explain the term “sustainable”
- Describe two different ways that consumers can become informed about seafood
- Describe why it is important to purchase sustainable seafood

Background Information

“Sustainable seafood is a hot topic these days. “Sustainability” is based on a simple principle: meeting today’s needs without compromising the ability of future generations to meet their needs; for example, using a resource but leaving some for the future. In terms of seafood, this means catching or farming seafood responsibly, with consideration for the long-term health of the environment and the livelihoods of the people that depend upon the environment. For example, U.S. seafood is wild-caught and farm-raised under strict regulations that work to keep the environment healthy, the fish populations thriving, and our seafood industry on the job. Consumers can still

National Science Education Standards

Grades 9-12

Content Standard F: Science in Personal and Social Perspectives

- Personal and Community Health
- Environmental Quality

Ocean Literacy Essential Principles

Essential Principle 5

The ocean and humans are inextricably interconnected.

Fundamental Concept a

Ocean life ranges in size from the smallest virus to the largest animal that has lived on earth, the blue whale.

Essential Principle 6

The ocean and humans are inextricably interconnected.

Fundamental Concept b

From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our nation's economy, serves as a highway for transportation of goods and people, and plays a role in national security.

Fundamental Concept g

Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

Essential Principle 7: The ocean is largely unexplored.

Fundamental Concept c

Over the last 40 years, use of ocean resources has increased significantly; therefore the future sustainability of ocean resources depends on our understanding of those resources and their potential and limitations.

purchase fish that are overfished in U.S. waters because they are considered sustainable if they have management plans in place to guide the rebuilding of the fish stock. Those purchases support the fishermen and their communities, many of which have had a fishing industry for generations.

Choosing sustainable seafood be challenging - how do consumers know the seafood at the market or on your menu came from sustainable sources? Recently, a number of seafood guides and ecolabels have emerged to assist people with purchasing sustainable seafood.

A number of organizations have created seafood guides to assist consumers and buyers with their "sustainable seafood" choices. Seafood guides rate seafood, typically based on environmental and biological criteria of species, fisheries, or aquaculture practices. Some guides include health concerns regarding mercury or other contaminants. The ratings found in these guides generally reflect an organization's policy stance regarding these issues, and as a result, the guides sometimes contradict each other. They also vary in their structure and how they categorize seafood. For example, one guide might rate yellowfin tuna as a whole while another might break it down by country of origin and fishing method.

While shopping for seafood, you might also notice that some seafood is displayed with an ecolabel. An ecolabel is a "seal of approval" awarded to fisheries and aquaculture operations deemed sustainable and responsible by third-party certification bodies. The certification process typically involves an in-depth assessment of the operation of the fishery or farm, how it's regulated, and its impact on the environment. If the fishery or farm meets the ecolabel's standards, it is certified. Another key element of ecolabels is chain of custody: the measures that guarantee the product bearing the ecolabel really came from the certified fishery or farm. Without chain of custody, the credibility of the label could be undermined.

Ecolabels are intended to function as a market-based incentive to promote more environmentally-friendly fisheries and aquaculture operations. As concerned consumers shift their demand to certified products, market prices for these products will increase, encouraging fisheries and aquaculture operations to adopt more sustainable and responsible practices. However, the certification process can require a large investment of time and money - resources that some fisheries and aquaculture operations cannot afford.

NOAA Fisheries Service developed the Fish Watch web site to inform consumers about the science and management behind sustainable seafood. Given a complete picture of fishery, consumers can make informed decisions about their seafood purchases.

(Source: www.fishwatch.gov.)

Learning Procedure

1. Ask students what they think the term "sustainable" means and list responses on the board.

2. Show students the 3-minute video "Meet Laura Anderson, Owner of Local Ocean Seafoods" www.nmfs.noaa.gov/stories/2012/03/05_localocean_laura_anderson.html

3. Tell students that they are going to participate in a simulated seafood market, where they will act as both seafood sellers and consumers of seafood.

4. Divide students into groups of four or five and explain they will be sellers first. Assign each group a specific fish or shellfish from the following:

- Caribbean spiny lobster
- Western Atlantic bluefin tuna
- Summer flounder
- Red snapper
- Atlantic sea scallop
- Alaskan pollock

5. All students should use www.FishWatch.gov, “Fisheries of the United States” (see Additional Resources), and other NOAA Fisheries Service sites through www.nmfs.noaa.gov research their species. They should read information on nutritional content, the status of the fishery, type of gear used, habitat impacts from fishing, bycatch issues, and the trends commercial, recreational, and international landings. Students should take notes to keep track of their research.

6. Remind the Sellers that they will have to be knowledgeable about their species, and they will prepare a 3-4 minute “sales pitch” (presentation, skit, commercial, etc.) to their classmates, the seafood consumers, about the benefits of their fish/shellfish. They should talk about management of the fishery, gear modifications to reduce bycatch, habitat impacts from fishing for the species, nutritional content of the species, and any other factual information they think will convince the consumer to purchase their catch. They should also be ready to answer questions about where the fish were caught, its freshness, etc. with factual information

7. After the research and creation of the “sales pitch” is complete, have all students create at least five questions that they will ask each group of sellers before they choose which species to buy.

8. Have each group present their information to the class and answer questions about their species.

9. After the presentation and the Q&A session, have each student vote by secret ballot for the species they would buy. Tally the results,share, andand discuss how the consumers made their decisions about which fish to buy. How did they choose? What information influenced their decision?

10. As wrap-up, have a class discussion about what individuals can do to make wise choices about sustainable seafood. List ideas on the board, and use the following as talking points:

- Consumers should stay informed and make sure they are using the most up-to-date, credible resources.
- Seafood should be bought from knowledgeable, reputable dealers. As shown in the video, many retailers and chefs are implementing seafood

procurement policies, making purchasing seafood from sustainable sources a priority.

- Consumers should ask questions about seafood. Where is it from? Is it wild-caught or farm-raised? How fresh is it?
- After this activity, did students' ideas about sustainability change? How?
- Remind students that they have a choice when buying seafood, and they can make it a smart one. (Source: www.fishwatch.gov)

The Bridge Connection

www.vims.edu/bridge
Search "sustainable seafood" and "seafood" on the main page for a list of resources which focus on these topics.

The "Me" Connection

Have students write a one-page essay or journal entry on how they would share with their families what they learned about choosing sustainable seafood.

Connections to Other Subjects

Health and Language Arts

Evaluation

Monitoring of group work, class discussions, presentations, and review of students' notes cards allow opportunities for assessment.

Have students write a short paper explaining their choice from the classroom activity and the reasons behind it.

Extensions

Have students interview their local grocery store seafood counter managers and ask where the store gets its fish and shellfish from, and if it is farm-raised or wild caught. Or, go to a local restaurant and ask the manager where the restaurant gets its fish and shellfish from and if they are farm-raised or wild caught. Make a list showing the species they sell/prepare and where they came from. Students can compare the prices of the wild-caught and farmed seafood and report their findings back to the class.

Additional Resources

NOAA Fisheries Service
www.nmfs.noaa.gov

Fisheries of the U.S.
www.st.nmfs.noaa.gov/st1/fus/fus10/index.html

Alaska Fisheries Science Center – A Journey from Sea to Market
www.afsc.noaa.gov/education/Activities/seafood_intro.html

The NOAA Research K-12 Education Site
www.oar.noaa.gov/k12/html/fisheries2.html